(No Model.)

W. M. & G. TAYLOR.

FIRE ESCAPE.

No. 421,115. Patented Feb. 11, 1890.

Fig. 1

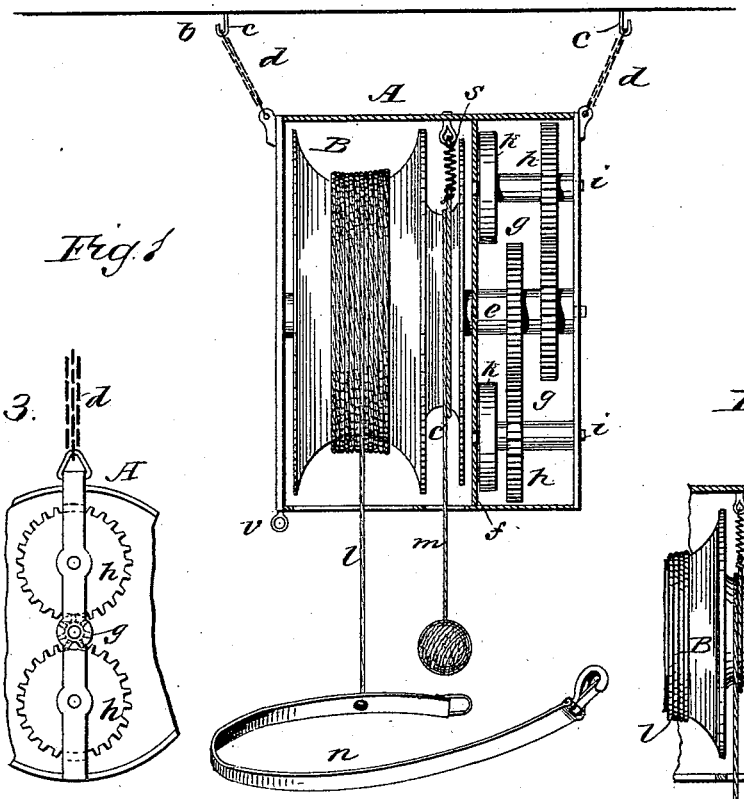


Fig. 3.

Fig 4

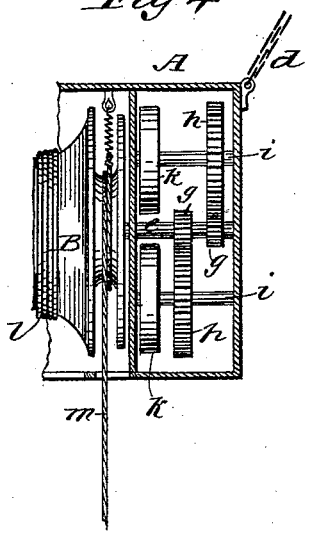
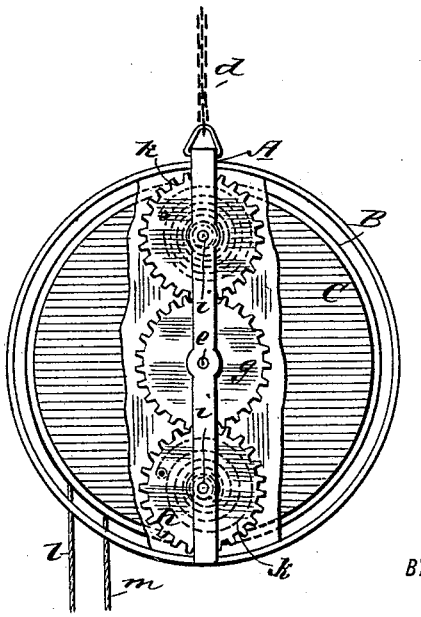


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM MATHEWS TAYLOR AND GEORGE TAYLOR, OF GORLESTON, ENGLAND.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 421,115, dated February 11, 1890.

Application filed September 7, 1889. Serial No. 323,242. (No model.) Patented in New South Wales November 19, 1887, No. 343.

To all whom it may concern:

Be it known that we, WILLIAM MATHEWS TAYLOR and GEORGE TAYLOR, both subjects of the Queen of Great Britain, now residing at Gorleston, near Great Yarmouth, England, have invented new and useful Improvements in Fire-Escapes, (patented in New South Wales November 19, 1887, No. 343,) of which the following is a full, clear, and exact description.

This invention relates to that description of fire-escapes which provide for persons in the upper stories of buildings descending by means of a rope as it is unwound from a drum or pulley, to which it is attached at its one end.

The invention consists in a novel construction of such an apparatus, substantially as hereinafter described, and pointed out in the claims, and whereby not only may persons make the descent in safety, subject to control of the speed in descending, as desired, but after each descent the apparatus after being relieved of its load automatically sets itself for a fresh load, as herein set forth.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a partly-sectional front elevation of a fire-escape embodying our invention. Fig. 2 is a partly-broken side view of the same. Fig. 3 is a further partly-broken side view showing a modification of the gearing used, and Fig. 4 is a further partly-sectional front elevation with said modified gearing applied.

The whole apparatus when in use is designed to be suspended to or from the lintel of a window, (indicated by the line *b* in Fig. 1,)—as, for instance, by two strong hooks *c c* and chains *d d* from the latter connected with the frame A of the apparatus on its opposite sides.

When the apparatus is not in use, it can be hung on either side of the window or be placed in any convenient part of the building; but when it is put in position for use it will be suspended from the upper part of the window, as above described.

B is the lowering drum or pulley, fast upon a horizontal shaft *e*, which has its bearings in the sides of the frame, the body of which may be cylindrical or of any other suitable shape. Upon this shaft *e*, beyond the pulley B and between one of the side pieces of the main frame and a fixed disk *f*, are secured two toothed wheels *g g*, which respectively engage on opposite sides of the axis of the shaft *e* with gear-wheels *h h*, carried by spindles *i i*, that are supported by the main frame and the fixed disk *f*. Around each of these spindles *i* is arranged a strong flat coiled spring *k*. These springs are secured at their one end to the disk *f* of the main frame and at their other end to the spindles *i i*.

The lowering-rope *l*, which is attached at its one end to the drum B, so as to wind on and unwind from the latter, should be of sufficient strength to carry, say, two men of average weight in safety. By the side of the lowering-drum B and fast to it or its shaft is a brake wheel or pulley C, around which is wrapped a friction cord or band *m*, secured above to the main frame, but pendent below.

When it is necessary to use the suspended fire-escape, the person to be lowered will attach himself to the lowering-rope *l* by means of a strap *n*, Fig. 1, and will hold onto the cord *m* with his right hand, say, allowing the same to slip or run as required, which causes said cord or band by its friction on the pulley C to act as a brake to regulate the speed of the descent, or, in other words, to regulate the speed of the descending weight, and the weight of the person thus being lowered will by means of the gears *g h*, connected with the lowering-drum, cause the springs *k* to be wound up, which will further assist in checking the descent and insure the person using the escape being lowered gently. After the descent has been made, and as soon as the person being lowered has reached the ground and he unfastens the strap *n* to detach himself from the apparatus, the springs *k* will commence to unwind, and by their action and geared connection, as described, with the lowering-drum B will reverse the rotation of said drum and wind up the rope *l* again, ready for the next person to descend by the apparatus in the manner described.

The friction cord or band *m* when not in

use is left coiled up where pendent from the pulley C; but when it is necessary to use the fire-escape said cord is released from its coiled form and allowed to drop to or near the ground with its upper end fast to the main frame and having a turn given it around the pulley C. This brake device not only serves to regulate the speed of the descending weight or person, but also acts as a check to prevent the springs *k* from rolling up the lowering-rope too rapidly. This cord or band *m* may be controlled, it will be observed, either by the person making the descent or by persons on the ground. A spring *s* may or may not be applied to said brake-cord where it is attached above, for the purpose of preventing breakage during descent in case the friction-cord *m* should be suddenly applied. In such case the spring *s* would yield to prevent either bringing the pulley B to a standstill or the breakage of the rope in case the latter were attached directly to the eyebolt, and an alarm-bell be attached to the escape to direct people to it; also, a ring *v* may be attached to the main frame to enable a person to ascend in case of need by means of a suitable lift attached to said ring.

In Figs. 3 and 4 the intermediate gears *g g* are of much smaller diameter than the gears *h h*, with which they mesh, which will be the preferable arrangement; but our invention is not restricted to gears of any particular sizes.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a fire-escape in which a lowering-rope and winding and unwinding pulley are used, the combination, with said pulley B and frame of the apparatus, of the brake-pulley C, the friction-cord *m*, and the spring *s*, connecting the friction-cord with the frame, substantially as described.

2. The combination, with the frame of the apparatus, of the drum or pulley B, to which the lowering-rope is attached, the gears *g* and *h*, the flat coil-springs *k*, the brake-pulley C, and the friction cord or band *m*, substantially as and for the purposes herein set forth.

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